

# ASPECT

Assessing Students' Progress on the Energy Concept

## Heating Bottle Task: AP50-4

### Summary of Student Performance

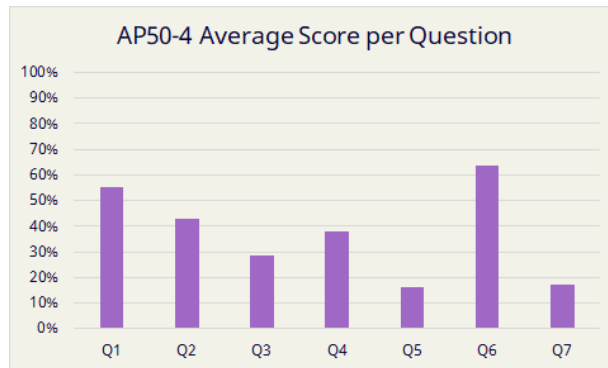
#### FIELD TEST

This task was administered to students during field tests conducted in the spring of 2021 and 2022. In 2021, over 2,300 students in grades 4 through 12 in the classrooms of 50 teachers from 27 states across the U.S. participated in the field testing. In 2022, over 1,500 students in grades 4 through 12 in the classrooms of 44 teachers from 16 states and Puerto Rico participated.

The data presented here are from the 207 students who responded to the task. Approximately 0% of the students were in elementary school, 42% were in middle school, and 58% were in high school. The graphs below present the mean percent correct for students in different categories. The percent correct was determined by summing the points earned on each question and dividing by the total possible points for the question. Students self-identified their gender and whether English was their primary language.

*The research reported here was supported by the Institute of Education Sciences, U.S. Department of Education, through Grant R305A180512 to BSCS Science Learning. The opinions expressed are those of the authors and do not represent views of the Institute or the U.S. Department of Education.*

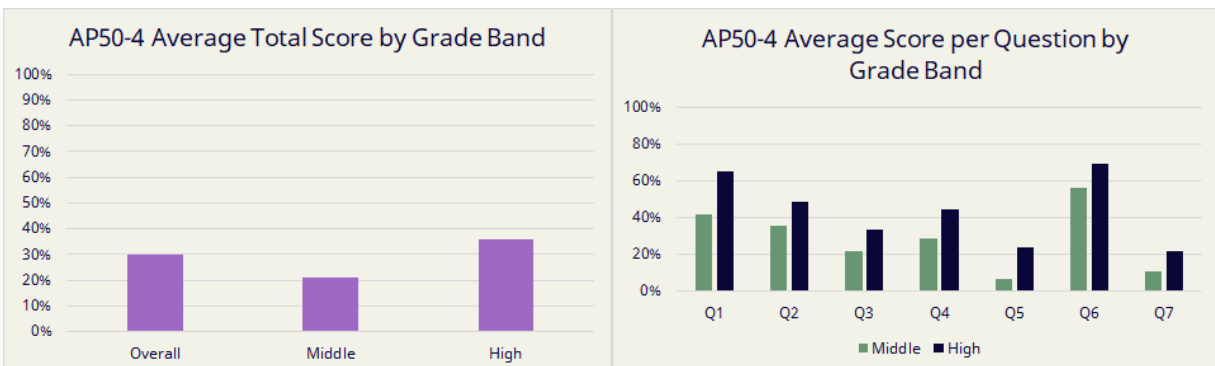
## OVERALL PERFORMANCE



Performance	# of students	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Total*
Overall	207	55%	43%	29%	38%	16%	64%	17%	30%

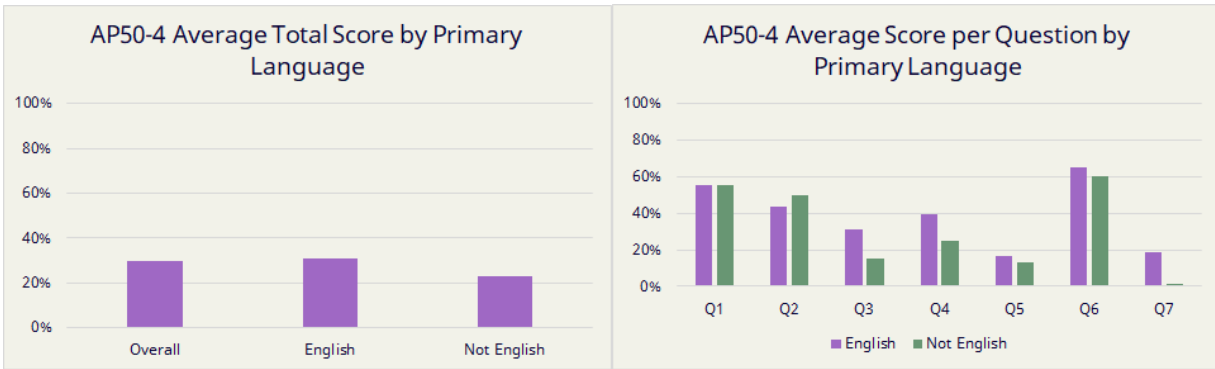
\*Total percentage was calculated by adding the number of points earned across the questions divided by the total number of points available. (Note that some questions had more points than others.)

## PERFORMANCE BY GRADE BAND



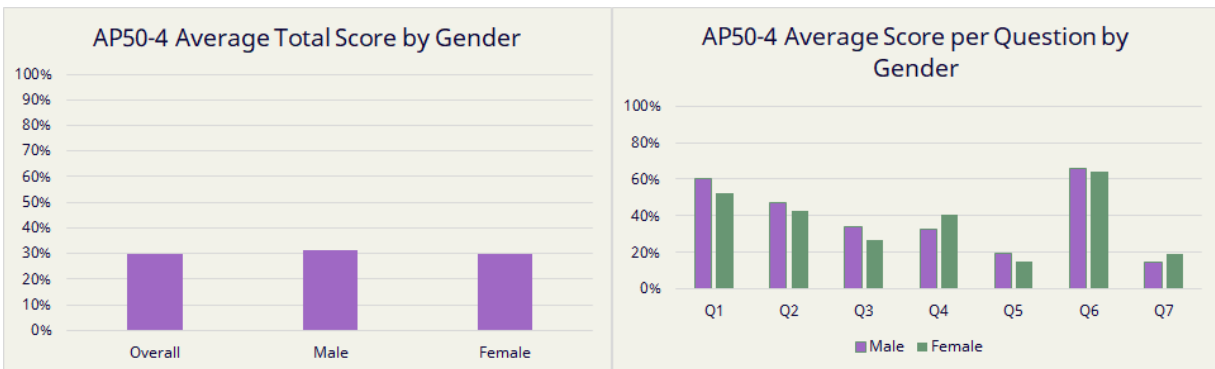
Grade Band	# of students	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Total
Elementary	0	-	-	-	-	-	-	-	-
Middle	87	41%	36%	22%	29%	6%	56%	10%	21%
High	120	65%	48%	33%	44%	24%	69%	22%	36%

## PERFORMANCE BY PRIMARY LANGUAGE



Primary Language	# of students	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Total
English	178	56%	43%	31%	39%	17%	65%	19%	31%
Not English	20	55%	50%	15%	25%	13%	60%	2%	23%

## PERFORMANCE BY GENDER



Gender	# of students	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Total
Male	85	60%	47%	34%	33%	20%	66%	15%	31%
Female	101	52%	43%	27%	41%	15%	64%	19%	30%